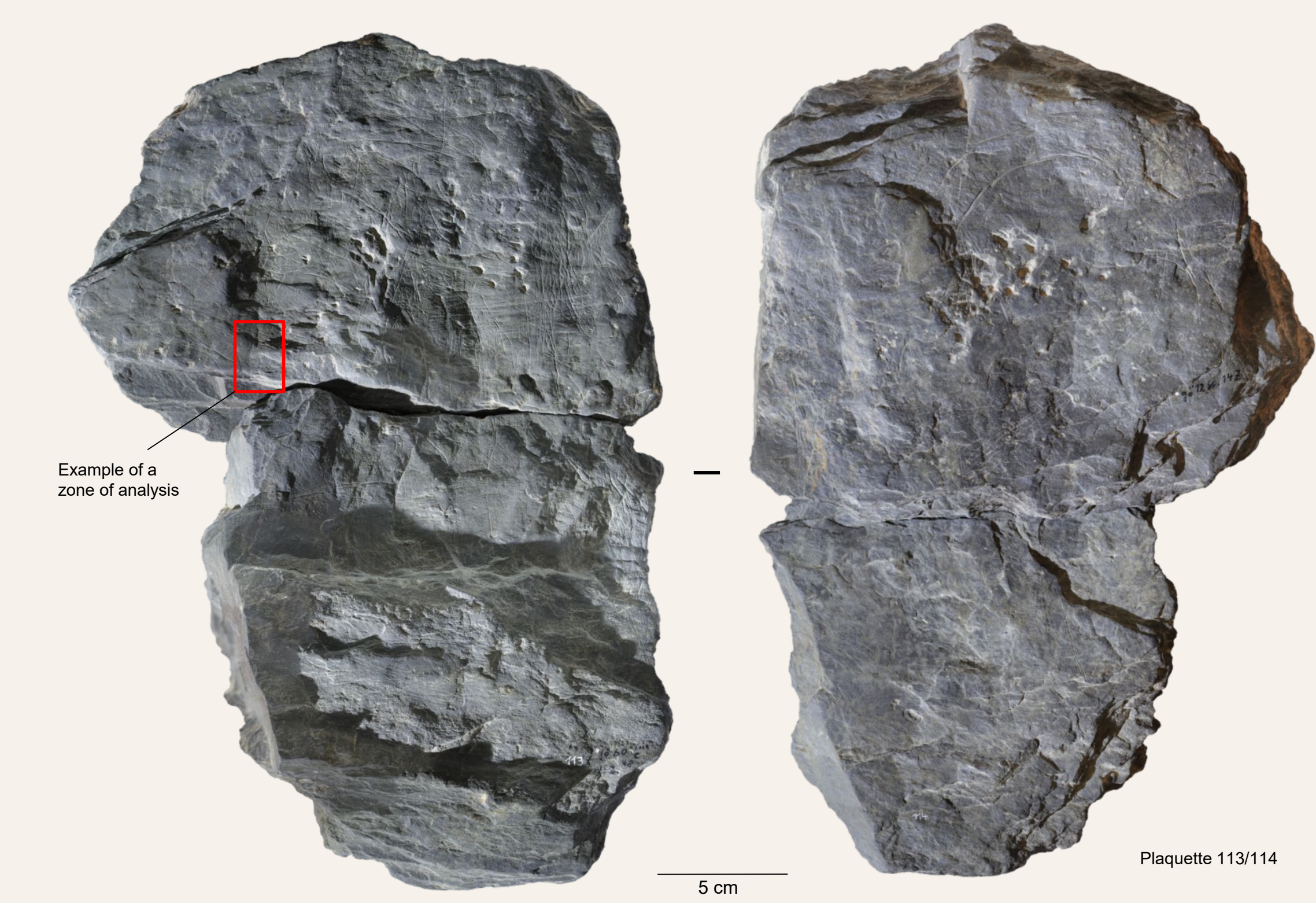


The integrity of the Gönnersdorf plaquettes: cases of fragmentation and reuse.

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Many of the Gönnersdorf Upper Palaeolithic plaquettes have been recovered in a very fragmentary state during excavation. Complex engravings on the plaquettes overlay each other, even over prehistoric breakage, making their “reading” a complex endeavour. Here, we present an example of one of the 405 plaquettes, part of the Gönnersdorf plaquette collection and study. Our study includes binocular stereoscopic and microscopic analysis which enables us to better understand the engravings and instances of fragmentation and to detect possible patterns of both. This analysis shows that prehistoric plaquette management was more complicated than we have initially thought. The investigation of certain characteristics, such as the engraving location and succession, and traces of manipulation and fragmentation, make it possible for us to determine whether the plaquettes were reused (re-engaged) and handled after fragmentation; how often they were fragmented and whether fragmentation was perhaps an intentional part of the art(-ritual) process. Our results will inform the next phases of our analysis which includes a deeper exploration of the plaquettes complete lifecycles and of their cumulative significance and agency within a Magdalenian society.

The main objective is to examine the state of reuse of a plaquette: whether there is integrity (or fragmentation), signs of reuse (additional engravings) and also to look at the discarding process of plaquettes (whether whole, fragmented, or reused).



Methods: The plaquette analysis was performed using a metallographic microscope (Zeiss Axioscope.A1) at a magnification 100x to 200x, a numeric microscope (Zeiss Smartzoom 5) and a stereo microscope (Zeiss Stereo Discovery V8.). Optical microscopy was complemented by RTI (Reflectance Transformation Imaging) at the **TraCEr** facility at Monrepos. So far, 333 (more than 82%) of the 405 plaquettes have been examined for fragmentation and reuse.

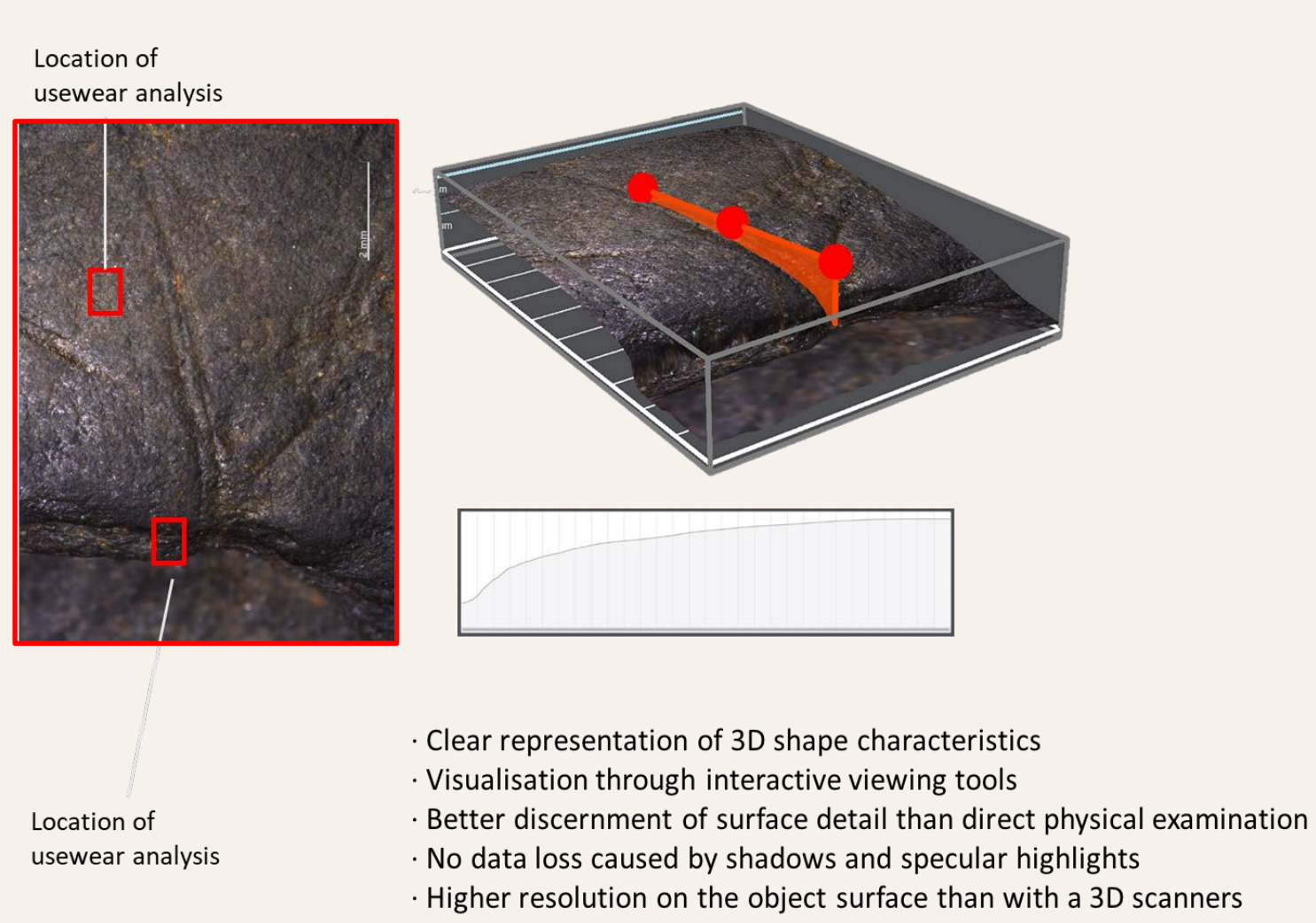
Several characteristics were analysed for the integrity of the plaquettes to be determined. For example:

- Evidence for fragmentation and polish on the edges
- Existence of fragments which could be refitted
- Location of the engravings on the surface
- The integrity of the engraving
- Evidence for engravings located on the side or edges of the plaquette

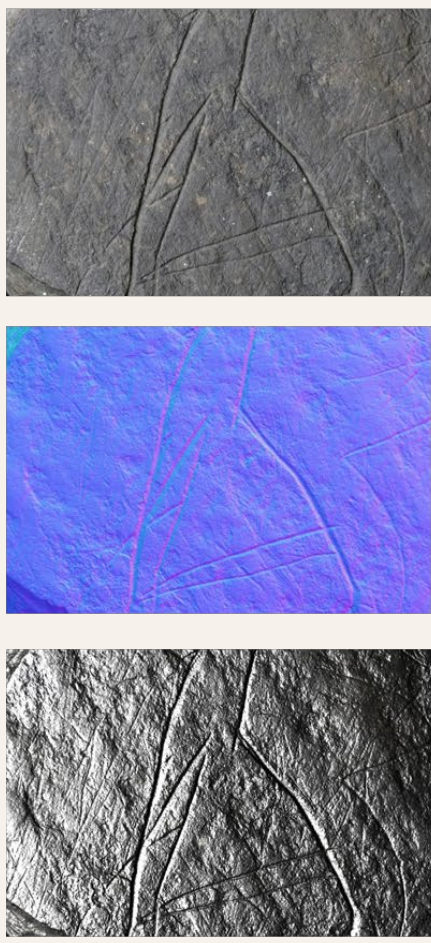
Characteristics of reuse

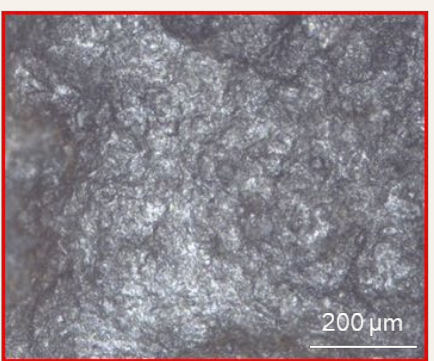
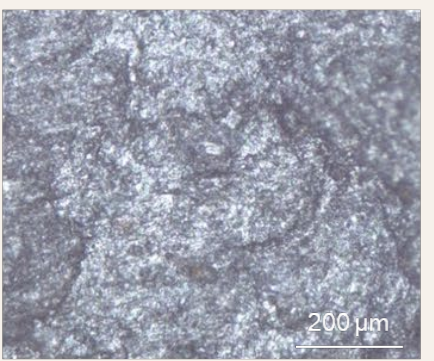

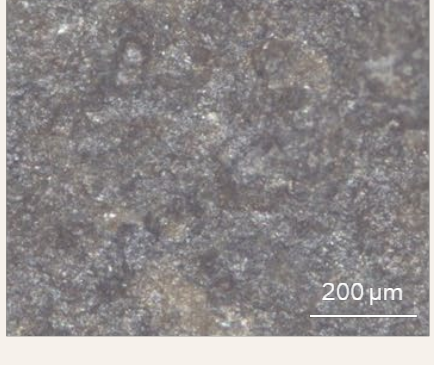
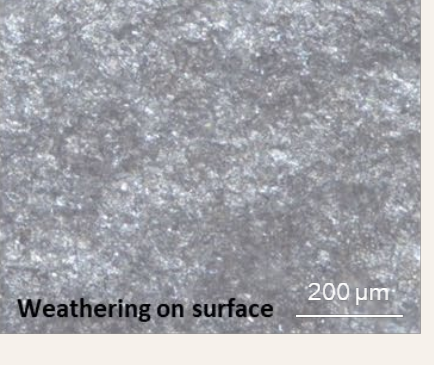
- Location and superimposition of a second engraving; seriation of the engravings; centralisation of an engraving on a reused surface; different engraving patterns
- Striations, because of engraving, on the edges of fragmented plaquettes
- Lateralisation of the engravings and indications of the artist’s dominant hand (left or right handed)
- Traces of manipulation, smoothed fragmented sides

Plaquette 113-114 under a numeric microscope



Reflectance Transformation Imaging (RTI)



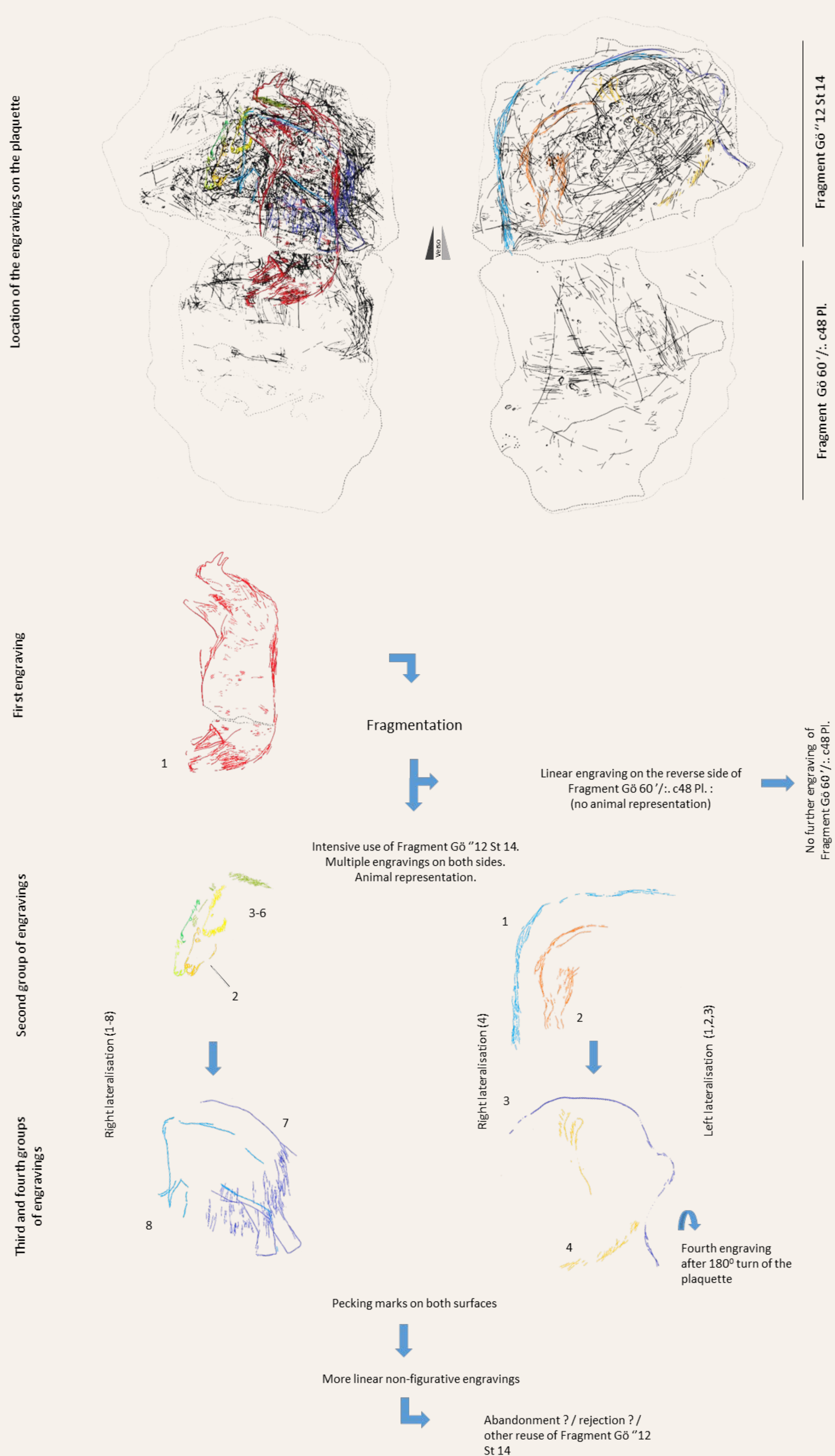
	Archaeological usewear	Experimental usewear	
Manipulation on the top of the plaquette			Manipulation on the top of the plaquette
Manipulation on the edge of the plaquette			Manipulation on the edge of the plaquette
No manipulation			No manipulation

The numeric microscope is a perfect tool for analysis of the succession and the morphologies of the engravings. It is also very useful for determining the edges of a plaquette and the engravings.

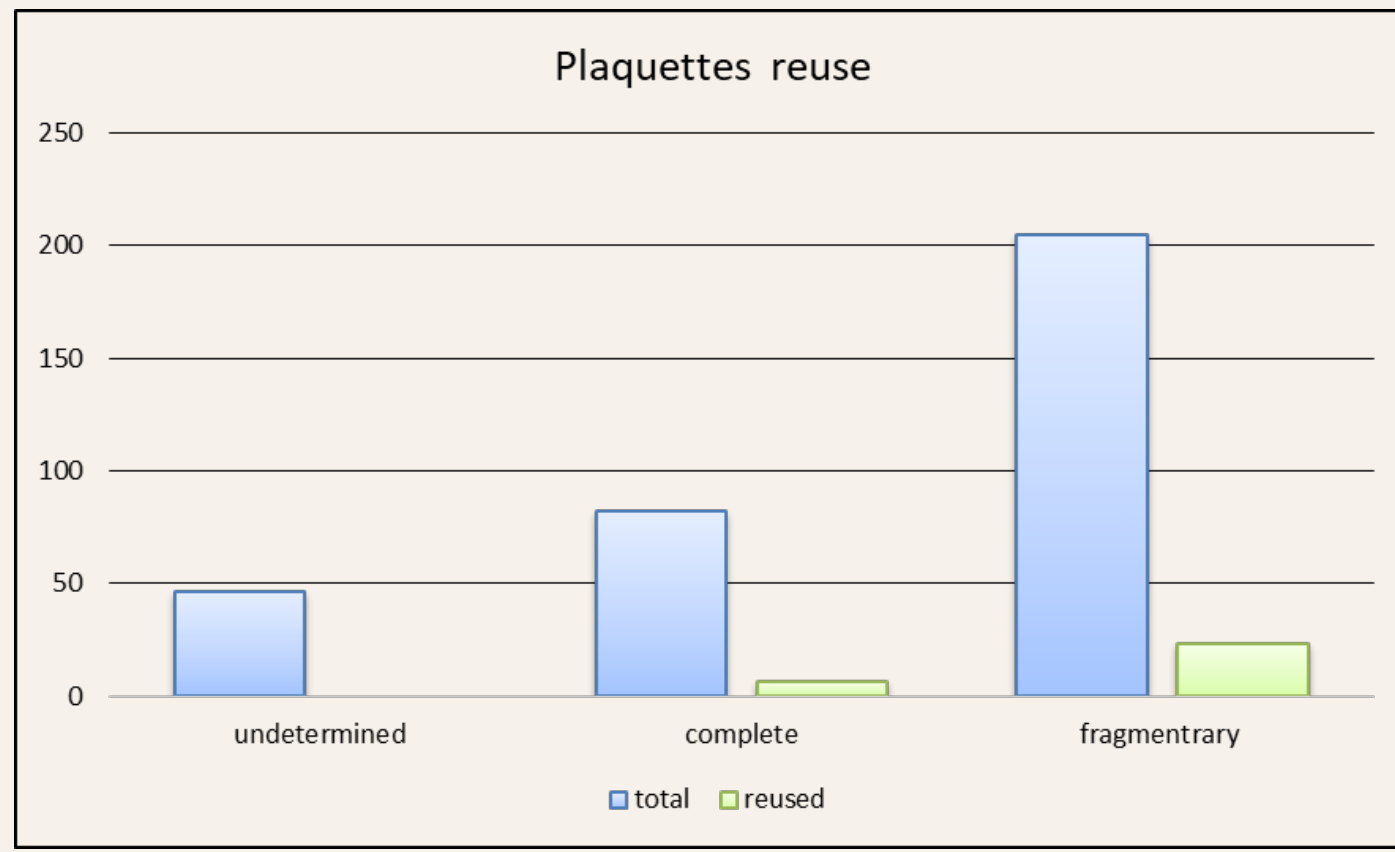
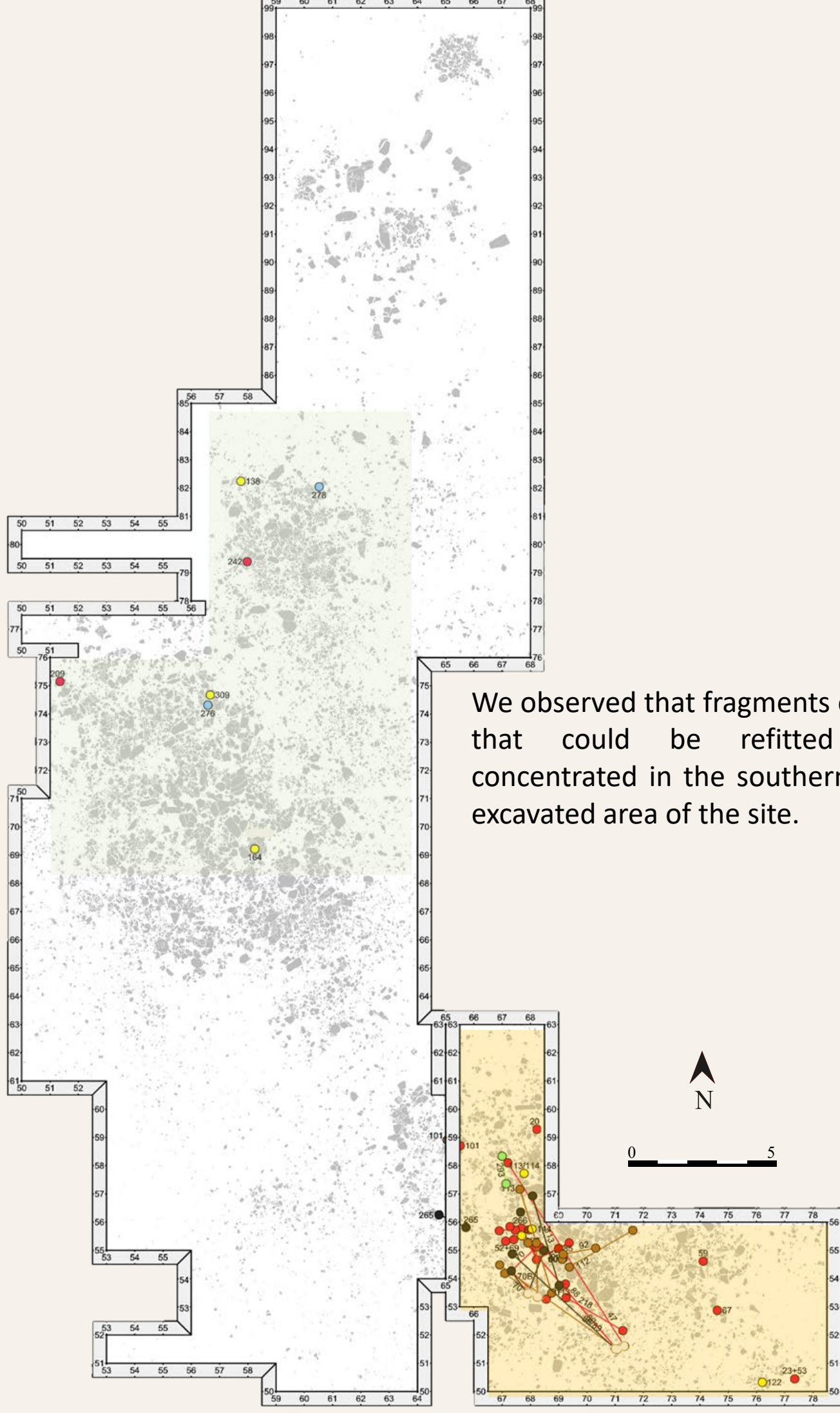
Reflectance Transformation Imaging (RTI) is particularly effective on artefacts with light engraving to improve their reading. In the study of the plaquettes, RTI offers a more accurate recording of surface morphology and enables us to clarify the relationships among superposition, orientation, and depth; it increases contrast and improves image acquisition and usability.

The traceological analysis of the surface and edge of the plaquettes is compared to a series of handling and manipulation experiments. On the microscopic scale, many usewear traces can be identified such as striation and polish. Preliminary results have shown that some plaquettes were used or handled extensively, while others, with limited engraving, were only moderately used.

Engravings identified on the Plaquette 113 – 114

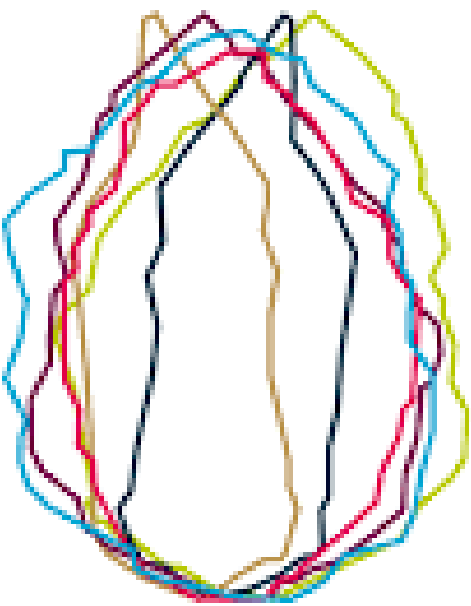


Gönnersdorf Site

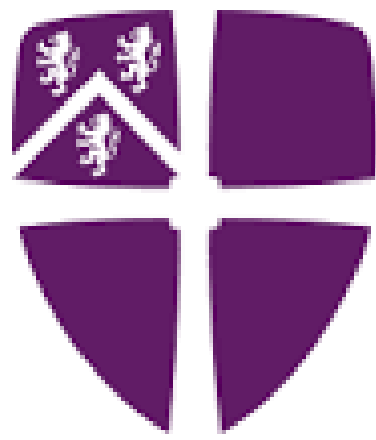


Preliminary results. Out of the 333 plaquettes, which have been analysed, 82 are complete. Out of the 82 complete plaquettes (the 7.32%) six plaquettes were reused. 205 plaquettes show signs of fragmentation. Out of the 205 fragmented plaquettes, 23 (the 12.22%) show signs of reuse. We were unable to determine with certitude the integrity of 46 plaquettes.

Future research will include the development of methodological and traceological analyses in combination with experimental testing of fragmenting, engraving, erasing and re-engraving schist plaquettes. The ‘Household art and activities, Palaeolithic style: the psychology of 16000 year old domestic culture at Gönnersdorf (Rhineland) and Oelknitz (Thuringia)’ aims to build up a database for the MONREPOS traceology lab, including identical engravings on slate, quantified by a number of times to test for techniques, strengths, the depth and the width of engravings, and the nature of image composition order. This will assist us in establishing and codifying the saliency and visibility of fresh engravings in day- and low-light, and with the undertaking of traceological characterisation of the figurative engraved plaquettes and of the experimental replicas. We expect that the comparison between the archaeological and the experimental plaquettes will enhance our understanding of the prehistoric counterparts’ use and our visibility and understanding of their context.



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